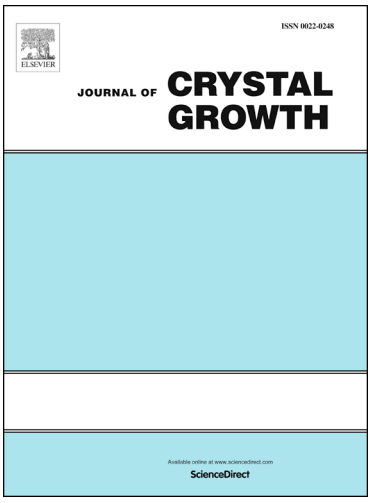

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Thermodynamics and nucleation mechanism of ammonium jarosite in sulfuric acid solution

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ABSTRACT: Jarosite process is one of the most widely used methods in removing Fe, but in which the nucleation mechanism of ammonium jarosite has not been reported. Solubilities of the ammonium jarosite crystals under different $Fe_2(SO_4)_3$ and $(NH_4)_2SO_4$ concentrations and under different temperatures were measured, and the experiments of induction periods were systematically investigated in different temperatures (348k, 358k and 368k) and H_2SO_4 concentrations (9g/L, 10.8g/L and 12.6g/L) by reaction crystallization process based on the thermodynamic equilibrium data. According to the model of classical nucleation theory, the interfacial tension and the surface entropy factors in different conditions were calculated as